

TURNING TABLES: CHEMICAL PERIODIC CHART PUZZLE AND TEACHING  
DEVICE

FIELD AND BACKGROUND OF THE INVENTION

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The invention relates to the field of teaching devices and,  
in particular, to a puzzle based upon the periodic table of  
the chemical elements and having a series of discrete cubes  
each corresponding to a chemical element as understood by the  
10 well known periodic table of the chemical elements. The base  
of the puzzle includes a puzzleboard that is shaped in the  
manner of the periodic table having those sections that hold  
an appropriate number of elements within the various rows and  
columns of the period chart that correspond to the properties  
15 and groupings of the elements according to theory.

Each of the cubes in the puzzle will depict one element of  
the periodic table and would include such chemical  
information as the electronic configurations (viz. how many  
20 electrons and in which electronic orbitals that are thought  
to exist), the chemical name, chemical symbol and/or atomic  
weight for that particular element and other properties  
thought to be relevant. The cubes should not contain the  
atomic numbers of any of the elements as that would otherwise  
25 make the puzzle too easy to solve. The cubes taken out of the  
puzzle board and are intended to be arranged back in the  
board according to the appropriate place in the periodic  
chart for each element in order to successfully complete the  
puzzle.

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## PRIOR ART

While there are puzzles that are known in the prior art for  
5 teaching sciences, such as chemistry, there are no known  
puzzles that provide for the cubical representation of each  
of the elements of the periodic chart so that each such cube  
may be replaced upon a puzzle board that corresponds to the  
10 shape of the periodic table. Nor are there any known puzzles  
that are teach the construction of the periodic table on an  
element by element basis where the student only has a minimum  
of information pertaining to each element available to him in  
order to complete the puzzle.

## 15 SUMMARY OF THE INVENTION

A learning puzzle for the study of chemistry and standard  
periodic table of the chemical elements. A puzzle board  
having a shape corresponding to that of the periodic table is  
20 provided and having a series of cubes that represents the  
elements of the periodic table for fitting into the puzzle  
board. The object of the puzzle is to replace these cubes  
representing the elements back into the puzzle board so that  
the finished puzzle will resemble the periodic table in the  
25 location of all the elements in their correct place in the  
table.

The puzzle board is necessarily shaped and sized to hold the  
appropriate number of elements in each of the rows and  
30 columns of the board. Preferably a depression in the  
appropriate shape may be formed in the puzzle board for  
holding the cubes corresponding to the appropriate elements.  
These rows and columns of course, correspond to the rows and  
columns of the periodic table with each of the various rows  
35 and columns having a meaning associated with the chemical  
theory of the elements.

The puzzle board will have at least seven rows in the array corresponding to the first seven rows of the periodic chart. Those rows corresponding to the Cesium and Thorium series of elements, a 2 x 14 array, may also be depicted by a separate depression that will hold the cubes corresponding to this array.

The challenge for the student then is to replace the elements of the periodic table as depicted by the cubes into their correct position on the periodic table. Each of the elements bears a distinct place in the periodic table that will be observed when the puzzle is completed. The student can and should use such information that is contained on each of the cubes in order to help him/her determine where each cube/element should go on the periodic table.

It is an object of the invention to provide a learning puzzle that is enjoyable to do and encourages students to recall and to understand the positions of the various elements as depicted in the well known Period Table of chemical elements.

Another object of the invention to provide a learning puzzle for allowing students to construct the periodic table of the elements by using a minimum of information about each element as depicted upon a cubic member associated with each such element.

Another object of the invention to provide a learning puzzle to provide students with a tabular representation of the elements of the periodic chart and allow them to fill up an empty version of this chart with cubic members corresponding to the various elements that make up the table.

Another object is to provide a challenging puzzle that can teach students the relationships of the various elements vis



The upper edge of the chart and hence, of the board, holds Hydrogen and Helium the numbers one and two elements in the table. They go in the upper left and upper right of the table/board and are sized and shape to hold the two cubes that correspond to these elements. In similar fashion, the second and third rows hold elements 3 through 18. A 2 x 2 array at the left edge and a 2 x 6 array at the right hand edge is the appropriate shape to hold these elements of the periodic table.

Moving further down the chart shows 3 x 18 array for those elements having atomic numbers 19 through 36; 37 through 54 and 55 through 86. Elements 87 and beyond fill out the bottom row of the periodic table as per the standard chart. The Cesium and Thorium series of elements may be represented by a separate depression that holds these elements in a 2 x 14 array; see fig. 1.

The puzzle board should of course, be deep enough to hold each cube so that it does not fall out of the puzzle after it has been put in its place on the board. Each of the cubes might have on it, say as a minimum, the atomic name of that element and perhaps other information such as electron configuration information and/or the atomic weight of that element. The one bit of information it should not have on it is the atomic number of that element as otherwise this information would make the puzzle all too easy for the student to solve.

The information that is given on the cube can and should be used by the student to learn how to fit the cubes into the puzzle board. It is possible that the orientation of the cubes may be varied from exercise to exercise say for example with the names of each element being face up in one exercise and in another, with the atomic weight of each being on the upturned face. In this manner, the student can learn where



sized to fit the appropriate number of cubes in the particular columns and rows that are appropriate including the elements of Hydrogen and Helium which are at the upper left and upper right corners, respectively of the periodic  
5 table. Wood, plastic and many other materials are likely capable of fulfilling this role.

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